

THE RATIONAL TREATMENT OF SCIATICA.¹

By GREME M. HAMMOND, M.D.

FIFTY years ago sciatica was described under the heading of "rheumatism." In one of the leading text-books of the day it was tersely mentioned as follows: "When rheumatism attacks the nerves of the leg it is called sciatica." The treatment recommended in the same volume was as limited as was the description of the disease, and consisted entirely in a recommendation of an anti-rheumatic diet and the internal administration of turpentine. Since then, however, sciatica has been studied in all of its forms, and the remedies which have been recommended for its cure are legion.

Before a disease can be scientifically treated, the pathological conditions which produce it must be thoroughly understood. A few words, therefore, on the pathology of sciatica will not be out of place in this paper.

Sciatica can properly be divided into two classes: one, in which the morbid changes take place primarily in the nerve itself; the other, where the disease begins primarily elsewhere and affects the nerve secondarily. The conditions which are supposed to induce sciatica by directly affecting the nerve are gout, rheumatism, syphilis, neuromata, traumatism, and cold; while the diseases to which sciatica is attributed secondarily are extra-pelvic and intra-pelvic tumors, including a distended rectum, and diseases of the bone, particularly hip-joint disease. Of all of these causes, exposure to cold probably produces more cases of sciatica than all the other causes combined.

It was formerly supposed that when the skin over the sciatic nerve was exposed to cold, and sciatica resulted, that the sciatica was due to neuralgia, that is, that the pain

¹ Read before the New York Neurological Society, April 1, 1890.

was produced by the irritation of central sensory cells. We know now, however, that this form of sciatica is a true neuritis. In mild cases, and probably in the initial stage of all cases, the inflammation is limited to the sheath of the nerve, the irritation of the delicate *nervi nervorum* accounting readily for the localized pain along the course of the nerve. In severe cases there is not only inflammation of the nerve-sheath, but there is also inflammation of the interstitial tissue, which, by its increase in volume, and consequent pressure upon the nerve-fibres, may induce atrophy and degeneration of the nerve and consequent atrophy and paralysis of many of the leg-muscles. There is also, in the majority of cases, an exudation of leucocytes between the nerve and its sheath, which, by distending the nerve-sheath, probably accounts for some of the pain.

In regard to the influence of gout, rheumatism, and syphilis as factors in the production of sciatica, I think there is considerable doubt. It is possible, in a very small percentage of cases, that these diseases may predispose the patient to sciatica, or may perhaps induce it primarily, but clinical evidence, at least in my experience, does not give much support to the rheumatic, gouty, or syphilitic origin of sciatica. Gowers² believes that both rheumatism and gout are "potent factors in the production of sciatica," but holds that "cases in which the syphilitic nature of the disease is certain are extremely rare." Anstie,³ on the other hand, remarks: "But so far from agreeing with those who think this [rheumatism] is a frequent case, my experience teaches me that it is quite exceptional; nor do I believe that the common opinion could ever have arisen had it not been for the rage that exists for connecting every disease with a special diathesis which the profession flatters itself that it understands." He is even more emphatic in his denunciation of gout as a cause of sciatica, and concludes with the remark that, in his experience, syphilis is but rarely concerned in producing it.

² Diseases of the Nervous System.

³ Neuralgia, etc.

My own clinical experience leads me to adopt Anstie's views. Rheumatism, gout, and syphilis are very common diseases in this country, and yet it is extremely rare to find an individual suffering from any one of them who also suffers from sciatica. As assistant to the Medical Clinic of Bellevue Hospital, I had the opportunity of seeing a great number of patients suffering from these diseases. In my clinic at the Metropolitan Throat Hospital, which I had for over two years, fully ninety per cent. of the patients suffered from rheumatism and gout. In the neurological department of the Post-Graduate School, with which I have been connected ever since the school was organized, I have had the opportunity of studying very many cases of sciatica; and my experience in this connection has shown that the vast majority of cases of sciatica have never suffered from rheumatism, gout, or syphilis, and that of the hundreds of cases of rheumatism, gout, and syphilis, a very infinitesimal proportion have even had sciatica. Another factor against the theory of rheumatism and gout causing sciatica is that anti-rheumatic and anti-goutic remedies, while they relieve the rheumatism and gout, fail utterly to improve the sciatica in the least. Again, no post-mortem evidences of gout or rheumatism can be found in the sciatic nerves after death.

It is very probable that both rheumatism and gout lower the tone of the system to such an extent as to render the patient more liable to an attack of sciatica than he otherwise would have been; but there is little or no evidence to show that either of these diseases directly produces sciatica, or neuritis in any other part of the body, by direct action.

Syphilis has been known, in rare instances, to cause sciatica, either by the pressure from gummata on the nerve-trunk or by causing inflammation in the nerve-sheath by the direct action of the syphilitic poison in the system. In regard to the latter, I am as skeptical as I am that the poisons of rheumatism and gout directly produce inflammation in the sheath or substance of the sciatic nerve.

Reports of cases of sciatica directly traceable to syphilis are uncommon. Only two such cases have come under my observation.

Neuromata, traumatism (which includes blows, falls, wounds, and muscular efforts), and intra-pelvic and extra-pelvic tumors, all produce sciatica by the irritation of pressure, which, if it is continued long enough, induces neuritis. Diseases of bones and joints cause sciatica by the extension of inflammation to the sciatic nerve.

It will therefore be understood, from the preceding remarks, that sciatica, no matter what its source of origin may be, is to be regarded as a neuritis, and is to be treated as such. Of course, if the neuritis has been induced by injury, by pressure, or by the extension of inflammation, it is absolutely necessary that these conditions should be removed; but by simply removing the original cause of the irritation, the pain is not always arrested. In the meantime the constant irritation of the sciatic nerve has resulted in a neuritis, which may remain long after the original source of irritation has been removed.

Considering, then, that we have to deal with an ordinary case of sciatica due to exposure to cold, or that we have successfully removed the original cause of the sciatica, and the pain still continues, what is the most rational plan of treatment to be adopted? Pathologically we have to deal with inflammation of the sheath of the nerve and perhaps of the nerve itself, and with a sero-fibrinous exudation, which is usually between the sheath and the nerve, but is sometimes in the substance of the nerve itself. Clinically we are confronted by pain, which may be slight or agonizing; continuous or only present on motion, and, in old cases, by a certain amount of atrophy of some of the muscles.

For the relief of pain the remedies used should vary with the extent of the suffering. In the most severe cases, where the suffering is intense, it is absolutely necessary to use morphine. When such is the case, it should be given hypodermically in doses amply sufficient to relieve all pain, and should be injected hypodermically, and not given by the mouth; the fluid should be injected as near the nerve as possible, as there is some reason to believe that morphine has a tendency to reduce the inflammation in a nerve when

brought in contact with it. In milder cases, phenacetin, in a single dose of fifteen grains, which can be repeated in an hour if necessary, will be found to fulfill all requirements. Antipyrine and antifibrin can be used in place of phenacetin if desired. I have never seen any benefit derived from the internal administration of aconitin, atropine, gelsemium, or turpentine, remedies which are claimed to be very useful in relieving the pain of sciatica.

To relieve the neuritis itself, I depend almost entirely upon rest, the application of cold, and the use of electricity.

In regard to the value of rest in the treatment of sciatica, there can be no doubt. Every time the leg is moved the functions of the sciatic nerve are called into play. It is well known that the use of nerves and muscles induces a temporary congestion of the parts used, which would only have a tendency to aggravate a condition of already existing inflammation. Now, by rest I do not mean simply forbidding a patient to walk about, or even confining him to his bed, but I mean absolute rest to the limb, which can only be obtained by putting the patient in bed and applying a suitable splint to the leg. The splint I always use is the old-fashioned long splint, reaching from the axilla to the sole of the foot. It should be attached to the body by means of a bandage, and in the same manner fastened to the leg from the ankle upward to a point just above the patella. This leaves the thigh and the sole of the foot uncovered, a proceeding which is necessary for the proper application of the cold and electricity. The idea of using a splint in cases of sciatica is not original with me, though perhaps the method of using it is. The splint was first advocated by Dr. S. Weir Mitchell several years ago, and is, I believe, still frequently used by him. It gives the leg absolute rest, and should be used in all severe cases. In very mild cases it is not necessary. About every fourth day it should be removed, and passive movements of the joints and slight manipulations of the muscles should be carefully made, after which the splint should be re-adjusted.

Cold is a most serviceable therapeutic agent. I am aware that refrigerating the skin over the course of the sciatic nerve with sprays of chloride of methyl, ether, and other agents which produce intense cold has been advocated and is frequently used. I have employed these remedies, and, after a careful trial of them, it does not seem to me that they are as efficacious as a more moderate degree of temperature continuously applied. It is my custom now to apply cold by means of ice-bags packed against the posterior surface of the thigh. This can readily be done with the splint on if it is adjusted in the manner just described. My reason for preferring this form of cold is that, it being continuous, it soon reaches the nerve, and materially aids in subduing the inflammation; as the cold is not intense, the skin is never frozen. My objection to the sprays of chloride of methyl, ether, and other freezing sprays is that the cold is so great that the skin soon freezes, and the application has to be discontinued before the beneficial results of the cold can be experienced by the inflamed nerve. This is particularly true of the chloride of methyl, which freezes the skin as soon as it comes in contact with it. It seems to me that where the chloride of methyl acts beneficially at all, it must do so as a counter-irritant, and not as a refrigerant. In my opinion the ether spray is far superior to it, as it is of a lesser degree of cold, and can therefore be applied for a much longer time; but neither of these agents can compare to the almost continuous application of the ice-bags.

Electricity, when properly applied, is one of the most useful and important remedies we possess for the treatment of sciatica, but when improperly used only serves to aggravate the disease and retard the recovery of the patient.

The faradaic current should not be used at all in acute sciatica. It is an irritating current, both to nerves and to muscles, and is therefore contra-indicated. After the neuritis has disappeared and the muscles have become flabby from disease, or in old cases, where the nerve has been damaged and atrophy of muscles has resulted, faradaic applications may be beneficial, but in acute sciatica it should never be used.

The galvanic current may be applied in two ways: as a continuous current, and as an interrupted current. There is the same objection to the interrupted galvanic current that there is to the faradaic—that is, that it is irritative. Both of these interrupted currents are antagonistic to the principle of absolute rest, which I believe to be so important a factor in the treatment of severe sciatica. The continuous galvanic current, on the other hand, is of great service. It allays pain, probably in part by the anæsthetic properties of its positive pole, probably in part by reducing the inflammation in the nerve. In what manner it relieves the neuritis is not known. It is claimed that it promotes the absorption of the serous exudation between the nerve and its sheath. However this may be, it unquestionably does relieve the patient, and in many instances no other remedy is necessary except rest. Its manner of application is as follows: The negative electrode should be about nine by four inches in size, and should be strapped to the sole of the foot by elastic bands. The positive electrode should be about five or six inches square, and should be applied over the gluteal region, over the point where the sciatic nerve emerges from the pelvis. If there are any very tender spots along the course of the nerve, this electrode can be changed occasionally so as to cover them. The strength of the current should not be such as to cause much pain, but should fall just short of doing so. No rule as to the current-strength to be employed can be laid down, as the point of toleration is different in different individuals. The continuous current should be applied twice daily, if possible, certainly once a day, for about five minutes at each *séance*. Most of the text-books recommend that at the end of each application of the continuous current a number of interruptions should be made in order to stimulate the muscles. Nothing of the sort should be done. It is opposed to the scientific treatment of the disease. It irritates the nerve, and counteracts, in part, if not altogether, the benefit derived from the continuous current.

As for the internal administration of drugs, there is very little to be said. In those cases which are unquestionably

syphilitic, of course anti-syphilitic treatment is indicated. In all other cases I think the iodide of potassium can be given, in gradually increasing doses, with great advantage, as it acts energetically in promoting the absorption of the serous exudation, and prevents, in a great measure, the formation of new connective-tissue.

Regarding sciatica from its pathological standpoint, it seems to me that the measures just alluded to—that is, absolute rest, the application of moderate but continuous cold, and the proper administration of the continuous galvanic current—constitute, with proper anodynes, to temporarily relieve pain, the rational and scientific treatment of the disease. In cases of moderate severity, rest, together with galvanism, will be the only remedies required.

In regard to other forms of treatment, a word must be said.

The use of colchicum, salicylic acid, salol, oil of winter-green, and other anti-goutic and anti-rheumatic remedies have not been followed by beneficial results in my cases, even where gout or rheumatism has complicated the case. Though the gout and rheumatism may yield to these drugs, the sciatica does not.

Blisters or the actual cautery are serviceable, but do not compare to the action of continuous cold. When the case is not a severe one, blisters or the cautery may be substituted for the cold.

Hypodermatic injections of various substances are frequently recommended as curing cases of sciatica. Among these may be mentioned ether, nitrate of silver, and osmic acid. Their action is so uncertain, and their tendency to create deep-seated abscesses is so well known, that I do not advocate their use.

The following cases, taken from a series of similar ones, will, I think, illustrate the points of the treatment just advocated :

CASE I.—A German, forty years of age, came to my clinic at this school in 1888. He had contracted sciatica in the left leg three weeks previously while standing at his

work while a strong draft was blowing on him. He was in great pain and walked with difficulty. There was no history of gout, rheumatism, or syphilis. I advised him to enter the hospital, but he refused to do so. I treated him as best I could for about four weeks, seeing him twice or three times a week. At the end of that time there was but slight improvement. He then entered Mt. Sinai Hospital, where he remained three weeks. While he was there he says "he took medicine, was told to keep quiet, and had a battery used on him five times." At the end of three weeks he reappeared at my clinic worse than he was before. He signified his willingness to enter the hospital; so I put him to bed at once, put the affected leg in a long splint (reaching from the axilla to the foot), packed ice-bags on the posterior surface of the thigh, gave orders that he was not to leave his bed, and had the continuous galvanic current applied, in the manner I have just mentioned, twice a day for five minutes at a time. In three days the pain had entirely ceased. I then left off the ice-bags; on the same day I removed the splint, and, after slight passive movements of the limb had been made, replaced it. This I did every three days. At the end of sixteen days the patient was discharged cured. I have seen him several times since then. There has been no recurrence of the attack.

CASE II.—A woman, forty-two years of age, with a decidedly rheumatic history. When I first saw her, on October 12, 1889, she had been suffering from a severe attack of sciatica in the right leg for over three weeks. It was not known how the attack originated, as there was no history of exposure to cold. Her family physician, believing it was of rheumatic origin, had treated her with salol and oil of wintergreen, but without materially lessening her sufferings. Morphine has been used to allay the pain. The treatment described in the history of the first case was carried out in this case, with the addition of the iodide of potassium in gradually increasing doses.

For the first three nights it was necessary to give morphine; but each night a reduced dose was given. On the fourth, fifth, and sixth nights the morphine was omitted, and ten grains of antipyrine were given at bed-time. After that no anodyne was used at all. There was a steady diminution of pain from the first. The splint was removed on the twelfth day, and the electricity was stopped on the eighteenth day, when she was pronounced well. She has had no return of the attack since.

CASE III.—A German woman, aged about fifty, consulted me, in November, 1888, for sciatica of the left leg. She had had it for about ten days. It began as a slight pain in the sciatic nerve, which had gradually increased, until at the time I saw her it was very severe. She was confined to bed, and was evidently in great pain. I ascertained that she had suffered from chronic constipation for several years, and that, for the past few months, five or six days would pass without there being a movement of the bowels. She would then take a strong cathartic and relieve herself for the time being. When I saw her she had not had a movement for five days. She has no history of gout, rheumatism, or syphilis. I directed my attention to relieving the bowels, supposing that when this was done the sciatica would disappear. It did disappear in a great measure, there being no pain at all as long as the patient remained quiet, but, almost as soon as she began to walk, the pain in the sciatic nerve would be felt, and would increase if exercise was persisted in. I confined her in bed for a week, not, however, using the splint or the ice-bags, and made applications of the continuous galvanic current twice daily. At the end of a week the patient could walk without the slightest pain.

These three cases, though taken from a large number, are not selected cases, but represent fairly the general average. In cases of long standing, where continued inflammation has produced organic changes in the nerve, with probable destruction of nerve-fibres, as shown by paralysis and atrophy of muscles, this form of treatment is not claimed to be efficacious.

"CEREBRAL SURGERY."

From reports of the St. Louis Academy of Medicine, this department of surgery is not yielding very brilliant results. A patient with hemiplegia, aphasia, Jacksonian epilepsy, and otorrhœa was trephined on the supposition, that an abscess existed in the temporal lobe. The operation resulted fatally, and autopsy revealed three tumors in the central convolutions. Two other cases were reported where a correct diagnosis was made, but death followed the operation in each. ("Medical Record," March 22, 1890).